Application No.: 10/808,678

THE CLAIMS

Following is a listing of claims:

1-46. (Canceled)

47. (Previously presented) A composition comprising an effective amount of a compound of formula **I**:

$$A^{1} \xrightarrow{T} O R^{2}$$

I

or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier, adjuvant, or vehicle, wherein:

 R^{1} is $-(L)_{m}R$, $-(L)_{m}Ar^{1}$, or $-(L)_{m}Cy^{1}$;

L is -S-, -O-, -N(R)-, or a C_{1-6} alkylidene chain wherein up to two non-adjacent methylene units of L are optionally and independently replaced by -S-, -O-, -N(R)-, -N(R)C(O)-, -N(R)C(S)-, -N(R)C(O)N(R)-, -N(R)C(S)N(R)-, -N(R)CO₂-, -C(O)-, -CO₂-, -C(O)N(R)-, -C(S)N(R)-, -OC(O)N(R)-, -SO₂-, -SO₂N(R)-, -N(R)SO₂-, -N(R)SO₂N(R)-, -C(R)=NN(R)-, -C(R)=N-O(R)-, -C(O)C(O)-, or -C(O)CH₂C(O)-; m is 0 or 1;

Ar¹ is an optionally substituted 5-7 membered monocyclic ring or an 8-10 membered bicyclic ring having 0-5 heteroatoms independently selected from nitrogen, oxygen, or sulfur;

Cy¹ is an optionally substituted 3-7 membered saturated or partially unsaturated monocyclic ring having 0-3 heteroatoms independently selected from nitrogen, oxygen, or sulfur, or an 8-10 membered saturated or partially unsaturated bicyclic

Application No.: 10/808,678

ring system having 0-5 heteroatoms independently selected from nitrogen, oxygen, or sulfur, wherein:

 Ar^{1} and Cy^{1} are each optionally substituted with up to 5 occurrences of Z-R X ; wherein

each occurrence of Z is independently a bond or a C₁-6 alkylidene chain, wherein up to

two non-adjacent methylene units of Z are optionally replaced by -S-, -O-, -N(R)-,

 $-N(R)C(O)-, -N(R)C(S)-, -N(R)C(O)N(R)-, -N(R)C(S)N(R)-, -N(R)CO_2-, -C(O)-,$

 $-CO_{2}$ -, -C(O)N(R)-, -C(S)N(R)-, -OC(O)N(R)-, $-SO_{2}$ -, $-SO_{2}N(R)$ -, $-N(R)SO_{2}$ -,

 $-N(R)SO_2N(R)$ -, -C(R)=NN(R)-, -C(R)=N-O(R)-, -C(O)C(O)-, or $-C(O)CH_2C(O)$ -;

each occurrence of RX is independently selected from -R', halogen, NO2, CN, -OR',

-SR', $-N(R')_2$, -N(R')C(O)R', -N(R')C(S)R', $-N(R')C(O)N(R')_2$, $-N(R')C(S)N(R')_2$,

 $-N(R')CO_2R'$, -C(O)R', -C(S)R', $-CO_2R'$, -OC(O)R', $-C(O)N(R')_2$, $-C(S)N(R')_2$,

 $-OC(O)N(R')_2$, -S(O)R', $-SO_2R'$, $-S(O)_3R'$; $-SO_2N(R')_2$, $-N(R')SO_2R'$,

 $-N(R')SO_2N(R')_2$, -C(O)C(O)R', $-C(O)CH_2C(O)R'$, -NR'NR'C(O)R',

 $-NR'NR'C(O)N(R')_2$, $-NR'NR'CO_2R'$, -C(O)N(OR')R', -C(NOR')R', $-S(O)_3R$,

-N(OR')R', $-C(=NH)-N(R')_2$; or $-(CH_2)_{0-2}NHC(O)R'$; wherein

each occurrence of R is independently hydrogen or an optionally substituted C_{1-6} aliphatic group,

- each occurrence of R' is independently hydrogen or an optionally substituted C_{1-6} aliphatic group, an optionally substituted C_{6-10} aryl ring, an optionally substituted heteroaryl ring having 5-10 ring atoms, or an optionally substituted heterocyclyl ring having 3-10 ring atoms; or
- R and R' or two occurrences of either R or R' are taken together with the atoms to which they are bound to form an optionally substituted 5-8 membered saturated, partially unsaturated, or aryl ring having 0-4 heteroatoms independently selected from nitrogen, oxygen, or sulfur; or
- two occurrences of either R' or R on the same nitrogen are taken together with the nitrogen atom to which they are bound to form an optionally substituted 5-8

Application No.: 10/808,678

membered saturated, partially unsaturated, or aryl ring having 1-4 heteroatoms independently selected from nitrogen, oxygen, or sulfur;

 R^2 is hydrogen, CN, -SR, -OR, -CO₂R, -OC(O)R, -C(O)R, -C(O)N(R)₂, -N(R)₂, or -N(R)C(O)R;

T is CR³:

each of A¹, A², and A³ is, independently, CR⁴;

 R^3 is selected from hydrogen, halogen, NO_2 , CN, -SR, -OR, $-N(R)_2$, or an optionally substituted C_{1-6} aliphatic group; and

R⁴ is selected from halogen, NO₂, CN, -(L)_mR, -(L)_mAr¹, or -(L)_mCy¹; or two R⁴ groups on adjacent atoms are taken together to form an optionally substituted 5-7 membered partially unsaturated or fully unsaturated ring having 0-3 heteroatoms independently selected from oxygen, sulfur, or nitrogen, wherein;

each ring formed by two R⁴ groups on adjacent atoms taken together is optionally substituted with up to 4 occurrences of Z-R^X.

48. (Canceled)

49. (Previously presented) The composition of claim 47, additionally comprising a therapeutic agent selected from mechlorethamine, chlorambucil, cyclophosphamide, melphalan, ifosfamide, methotrexate, 6-mercaptopurine, 5-fluorouracil, cytarabile, gemcitabine, vinblastine, vincristine, vinorelbine, paclitaxel, etoposide, irinotecan, topotecan, doxorubicin, bleomycin, mitomycin, carmustine, lomustine, cisplatin, carboplatin, asparaginase, and tamoxifen, leuprolide, flutamide, megestrol, imatinib (GleevecTM), adriamycin, dexamethasone, or cyclophosphamide.

Application No.: 10/808,678

50. (Previously presented) A method of inhibiting c-MET kinase activity in a biological sample, wherein said biological sample is selected from a cell culture, biopsied material obtained from a mammal, saliva, urine, feces, semen, or tears, or an extract thereof; which method comprises contacting said biological sample with a composition according to claim 47 or a compound of formula **I**:

I

or a pharmaceutically acceptable salt thereof, wherein:

 R^{1} is $-(L)_{m}R$, $-(L)_{m}Ar^{1}$, or $-(L)_{m}Cy^{1}$;

L is -S-, -O-, -N(R)-, or a C_{1-6} alkylidene chain wherein up to two non-adjacent methylene units of L are optionally and independently replaced by -S-, -O-, -N(R)-, -N(R)C(O)-, -N(R)C(S)-, -N(R)C(O)N(R)-, -N(R)C(S)N(R)-, -N(R)CO₂-, -C(O)-, -CO₂-, -C(O)N(R)-, -C(S)N(R)-, -OC(O)N(R)-, -SO₂-, -SO₂N(R)-, -N(R)SO₂-, -N(R)SO₂N(R)-, -C(R)=NN(R)-, -C(R)=N-O(R)-, -C(O)C(O)-, or -C(O)CH₂C(O)-; m is 0 or 1;

Ar¹ is an optionally substituted 5-7 membered monocyclic ring or an 8-10 membered bicyclic ring having 0-5 heteroatoms independently selected from nitrogen, oxygen, or sulfur;

Cy¹ is an optionally substituted 3-7 membered saturated or partially unsaturated monocyclic ring having 0-3 heteroatoms independently selected from nitrogen, oxygen, or sulfur, or an 8-10 membered saturated or partially unsaturated bicyclic ring system having 0-5 heteroatoms independently selected from nitrogen, oxygen, or sulfur, wherein;

Ar¹ and Cy¹ are each optionally substituted with up to 5 occurrences of Z-R^X; wherein

Application No.: 10/808,678

each occurrence of Z is independently a bond or a C_{1-6} alkylidene chain, wherein up to two non-adjacent methylene units of Z are optionally replaced by -S-, -O-, -N(R)-,

$$-N(R)C(O)$$
-, $-N(R)C(S)$ -, $-N(R)C(O)N(R)$ -, $-N(R)C(S)N(R)$ -, $-N(R)CO_2$ -, $-C(O)$ -,

$$-CO_2$$
-, $-C(O)N(R)$ -, $-C(S)N(R)$ -, $-OC(O)N(R)$ -, $-SO_2$ -, $-SO_2N(R)$ -, $-N(R)SO_2$ -,

$$-N(R)SO_2N(R)$$
-, $-C(R)=NN(R)$ -, $-C(R)=N-O(R)$ -, $-C(O)C(O)$ -, or $-C(O)CH_2C(O)$ -;

each occurrence of R^X is independently selected from -R', halogen, NO₂, CN, -OR',

$$-SR'$$
, $-N(R')_2$, $-N(R')C(O)R'$, $-N(R')C(S)R'$, $-N(R')C(O)N(R')_2$, $-N(R')C(S)N(R')_2$,

$$-N(R')CO_2R'$$
, $-C(O)R'$, $-C(S)R'$, $-CO_2R'$, $-OC(O)R'$, $-C(O)N(R')_2$, $-C(S)N(R')_2$,

- $-OC(O)N(R')_2$, -S(O)R', $-SO_2R'$, $-S(O)_3R'$; $-SO_2N(R')_2$, $-N(R')SO_2R'$,
- $-N(R')SO_2N(R')_2$, -C(O)C(O)R', $-C(O)CH_2C(O)R'$, -NR'NR'C(O)R',
- $-NR'NR'C(O)N(R')_2$, $-NR'NR'CO_2R'$, -C(O)N(OR')R', -C(NOR')R', $-S(O)_3R$,
- -N(OR')R', $-C(=NH)-N(R')_2$; or $-(CH_2)_{0-2}NHC(O)R'$; wherein
- each occurrence of R is independently hydrogen or an optionally substituted C₁₋₆ aliphatic group,
- each occurrence of R' is independently hydrogen or an optionally substituted C_{1-6} aliphatic group, an optionally substituted C_{6-10} aryl ring, an optionally substituted heteroaryl ring having 5-10 ring atoms, or an optionally substituted heterocyclyl ring having 3-10 ring atoms; or
- R and R' or two occurrences of either R or R' are taken together with the atoms to which they are bound to form an optionally substituted 5-8 membered saturated, partially unsaturated, or aryl ring having 0-4 heteroatoms independently selected from nitrogen, oxygen, or sulfur; or
- two occurrences of either R' or R on the same nitrogen are taken together with the nitrogen atom to which they are bound to form an optionally substituted 5-8 membered saturated, partially unsaturated, or aryl ring having 1-4 heteroatoms independently selected from nitrogen, oxygen, or sulfur;

Application No.: 10/808,678

 R^2 is hydrogen, CN, -SR, -OR, -CO₂R, -OC(O)R, -C(O)R, -C(O)N(R)₂, -N(R)₂, -N(R)C(O)R, or an optionally substituted C₁₋₆ aliphatic group; T is CR^3 ;

each of A¹, A², and A³ is, independently, CR⁴;

 R^3 is selected from hydrogen, halogen, NO_2 , CN, -SR, -OR, $-N(R)_2$, or an optionally substituted C_{1-6} aliphatic group; and

R⁴ is selected from halogen, NO₂, CN, -(L)_mR, -(L)_mAr¹, or -(L)_mCy¹; or two R⁴ groups on adjacent atoms are taken together to form an optionally substituted 5-7 membered partially unsaturated or fully unsaturated ring having 0-3 heteroatoms independently selected from oxygen, sulfur, or nitrogen, wherein;

each ring formed by two R⁴ groups on adjacent atoms taken together is optionally substituted with up to 4 occurrences of Z-R^X.

51. (Canceled)

- 52. (Previously presented) A method of treating or lessening the severity of a disease or condition in a patient selected from gastric cancer, pancreatic cancer, ovarian cancer, breast cancer, or prostate cancer comprising the step of administering to said patient a composition of claim 47.
- 53. (Previously presented) The method according to claim 52, comprising the additional step of administering to said patient an additional therapeutic agent selected from mechlorethamine, chlorambucil, cyclophosphamide, melphalan, ifosfamide, methotrexate, 6-mercaptopurine, 5-fluorouracil, cytarabile, gemcitabine, vinblastine, vincristine, vinorelbine, paclitaxel, etoposide, irinotecan, topotecan, doxorubicin, bleomycin, mitomycin, carmustine, lomustine, cisplatin, carboplatin, asparaginase, and

Application No.: 10/808,678

tamoxifen, leuprolide, flutamide, megestrol, imatinib (Gleevec™), adriamycin, dexamethasone, or cyclophosphamide, wherein:

said additional therapeutic agent is appropriate for the disease being treated; and said additional therapeutic agent is administered together with said composition as a single dosage form or separately from said composition as part of a multiple dosage form.

54-58. (Canceled)

59. (Previously presented) The composition according to claim 47, wherein R^1 is $-(L)_mAr^1$ and Ar^1 is selected from one of the following groups:

Application No.: 10/808,678

$$ZR^{X}$$
 ZR^{X}
 Z

wherein x is 0-5.

60. (Previously presented) The composition according to claim 59, wherein Ar¹ is selected from one of the following groups:

$$(ZR^{X})_{x}$$
 $(ZR^{X})_{x}$
 $(ZR^{X})_{x}$

wherein x is 0-5.

Application No.: 10/808,678

61. (Previously presented) The composition according to claim 59, wherein R^1 is $-(L)_m$ -Ar¹, m is 1 and compounds have the formula **IA-1**:

$$A^{1} \xrightarrow{R^{2}} A^{3} \xrightarrow{O} (L) - Ar^{1}$$

$$IA-1$$

62. (Previously presented) The composition according to claim 59, wherein Ar¹ is phenyl with 0-5 occurrences of ZR^X and compounds have the formula **IA-1-5**:

$$A^{1} \xrightarrow{\text{N}(\text{OH})} R^{2}$$

$$A^{2} \xrightarrow{\text{A}^{3}} O \xrightarrow{\text{(L)}_{m}} (ZR^{X})_{x}$$

IA-1-5,

wherein x is 0-5.

63. (Previously presented) The composition according to claim 47, wherein R^1 is $-(L)_m$ - Cy^1 and compounds have the formula **IA-2**:

$$A^{1} \xrightarrow{\text{N}(\text{OH})} R^{2}$$

$$A^{2} \xrightarrow{\text{A}^{3}} O \xrightarrow{\text{(L)}_{\text{m}} \cdot \text{Cy}^{1}} IA-2 .$$

Application No.: 10/808,678

64. (Previously presented) The composition according to claim 63, wherein Cy¹ is selected from one of the following groups:

wherein x is 0-5.

- 65. (Previously presented) The composition according to claim 59, wherein L is an optionally substituted C₁₋₆ straight or branched alkylidene chain wherein one methylene unit of L is optionally replaced by O, NR, NRCO, NRCS, NRCONR, NRCSNR, NRCO₂, CO, CO₂, CONR, CSNR, OC(O)NR, SO₂, SO₂NR, NRSO₂, NRSO₂NR, C(O)C(O), or C(O)CH₂C(O).
- 66. (Previously presented) The composition according to claim 65, wherein L is an optionally substituted C_{1-6} straight or branched alkylidene chain wherein one methylene unit of L is optionally replaced by O, NR, NRCO, CO, CONR, SO₂NR, NRSO₂.

Application No.: 10/808,678

- 67. (Previously presented) The composition according to claim 47, wherein R^1 is $-(L)_m R$, L is an optionally substituted C_{1-6} straight or branched alkylidene chain wherein one methylene unit of L is optionally replaced by O, NR, NRCO, NRCONR, NRCO₂, CO, CO₂, CONR, OC(O)NR, SO₂, SO₂NR, NRSO₂, NRSO₂NR, and R is an optionally substituted C_{1-6} aliphatic group.
- 68. (Previously presented) The composition according to claim 47, wherein R^2 is hydrogen, -CN, -OR, -CO₂R, -OC(O)R, -C(O)R, -C(O)N(R)₂, -N(R)₂, or -N(R)C(O)R.

69-70. (Canceled)

71. (Previously presented) The composition according to claim 47, wherein R^2 is hydrogen and compounds have the formula **IB**:

$$A^{1} \xrightarrow{\mathsf{N}(\mathsf{OH})} \mathsf{R}^{1}$$

$$\mathsf{IB} .$$

- 72. (Previously presented) The composition according to claim 47, wherein T is CR^3 and R^3 is hydrogen, halogen, CN, or an optionally substituted C_{1-6} aliphatic group.
- 73. (Previously presented) The composition according to claim 72, wherein R³ is hydrogen, halogen, CF₃, methyl, ethyl, n-propyl, isopropyl, or cyclopropyl.

Application No.: 10/808,678

74. (Previously presented) The composition according to claim 47, wherein T is CR³, R³ is hydrogen and compounds have the formula **IC**:

$$A^{1} \xrightarrow{N(OH)} R^{2}$$

$$A^{2} \xrightarrow{A^{3}} O R^{1}$$

$$IC.$$

- 75. (Previously presented) The composition according to claim 47, wherein A^1 is CR^4 and R^4 is halogen, CN, $-(L)_mR$, $-(L)_mAr^1$, or $-(L)_mCy^1$.
- 76. (Previously presented) The composition according to claim 75, wherein L is an optionally substituted C₁₋₆ straight or branched alkylidene chain wherein one methylene unit of L is optionally replaced by O, NR, NRCO, NRCONR, NRCO₂, CO, CO₂, CONR, OC(O)NR, SO₂, SO₂NR, NRSO₂, NRSO₂NR, C(O)C(O), or C(O)CH₂C(O).
- 77. (Previously presented) The composition according to claim 75, wherein A¹ is CR⁴ and R⁴ is halogen, CN, or R.
- 78. (Previously presented) The composition according to claim 75, wherein A^1 is CR^4 , R^4 is $-(L)_mR$, and compounds have the formula **ID-1**:

$$\begin{array}{c}
R \\
N(OH) \\
A^{2} \\
A^{3} \\
I
\end{array}$$

D-1.

Application No.: 10/808,678

79. (Previously presented) The composition according to claim 75, wherein A^1 is CR^4 , R^4 is $-(L)_mAr^1$, and compounds have the formula **ID-2**:

$$Ar_{l}^{1} \xrightarrow{N(OH)} R^{2}$$

$$A^{2} \xrightarrow{A^{3}} O R^{1}$$

$$ID-2 .$$

80. (Previously presented) The composition according to claim 75, wherein A^1 is CR^4 , R^4 is $-(L)_mCy^1$, and compounds have the formula **ID-3**:

$$Cy_{m}^{1}$$
 R^{2}
 A^{2}
 A^{2}

- 81. (Previously presented) The composition according to claim 47, wherein A^2 is CR^4 and R^4 is halogen, CN, $-(L)_mR$, $-(L)_mAr^1$, or $-(L)_mCy^1$.
- 82. (Previously presented) The composition according to claim 81, wherein L is an optionally substituted C₁₋₆ straight or branched alkylidene chain wherein one methylene unit of L is optionally replaced by O, NR, NRCO, NRCONR, NRCO₂, CO, CO₂, CONR, OC(O)NR, SO₂, SO₂NR, NRSO₂, NRSO₂NR, C(O)C(O), or C(O)CH₂C(O).
- 83. (Previously presented) The composition according to claim 81, wherein A² is CR⁴ and R⁴ is halogen or R.

Application No.: 10/808,678

84. (Previously presented) The composition according to claim 81, wherein A^2 is CR^4 and R^4 is $-(L)_mR$, wherein L is -O- or -N(R)-.

- 85. (Previously presented) The composition according to claim 81, wherein A^2 is CR^4 , R^4 is $-(L)_mCy^1$, m is 0 and Cy^1 is 2-2, 2-5, 2-6, 2-7, 2-8, or 2-12.
- 86. (Previously presented) The composition according to claim 81, wherein A^2 is CR^4 , R^4 is $-(L)_mAr^1$, m is 0 and Ar^1 is 1-5, 1-6, 1-11, 1-12, 1-13, 1-19, 1-24, or 1-25.
- 87. (Previously presented) The composition according to claim 81, wherein A^2 is CR^4 , R^4 is $-(L)_mR$, and compounds have the formula **IE-1**:

$$\mathbb{R}^{1}$$
 \mathbb{R}^{1}
 \mathbb{R}^{1}
 \mathbb{R}^{1}

IE-1.

88. (Previously presented) The composition according to claim 81, wherein A^2 is CR^4 , R^4 is $-(L)_mAr^1$, and compounds have the formula **IE-2**:

IE-2.

Application No.: 10/808,678

89. (Previously presented) The composition according to claim 81, wherein A^2 is CR^4 , R^4 is $-(L)_mCy^1$, and compounds have the formula **IE-3**:

- 90. (Previously presented) The composition according to claim 47, wherein A^3 is CR^4 and R^4 is halogen, CN, $-(L)_mR$, $-(L)_mAr^1$, or $-(L)_mCy^1$.
- 91. (Previously presented) The composition according to claim 90, wherein L is an optionally substituted C₁₋₆ straight or branched alkylidene chain wherein one methylene unit of L is optionally replaced by O, NR, NRCO, NRCONR, NRCO₂, CO, CO₂, CONR, OC(O)NR, SO₂, SO₂NR, NRSO₂, NRSO₂NR, C(O)C(O), or C(O)CH₂C(O).
- 92. (Previously presented) The composition according to claim 90, wherein A³ is CR⁴ and R⁴ is halogen or R.
- 93. (Previously presented) The composition according to claim 90, wherein A^3 is CR^4 and R^4 is $-(L)_mR$, wherein L is -O- or -N(R)-.
- 94. (Previously presented) The composition according to claim 90, A³ is CR⁴, R⁴ is -(L)_mCy¹, m is 0 and Cy¹ is 2-2, 2-5, 2-6, 2-7, 2-8, or 2-12.
- 95. (Previously presented) The composition according to claim 90, wherein A^3 is CR^4 , R^4 is $-(L)_mAr^1$, m is 0 and Ar^1 is 1-5, 1-6, 1-11, 1-12, 1-13, 1-19, 1-24, or 1-25.

Application No.: 10/808,678

96. (Previously presented) The composition according to claim 90, wherein A^3 is CR^4 , R^4 is $-(L)_mR$, and compounds have the formula **IF-1**:

97. (Previously presented) The composition according to claim 90, wherein A^3 is CR^4 , R^4 is $-(L)_mAr^1$, and compounds have the formula **IF-2**:

$$Ar^{1-L} \longrightarrow R^{2}$$

$$Ar^{1-L} \longrightarrow R^{2}$$

$$R^{1}$$

$$R^{2}$$

$$R^{1}$$

IF-2.

98. (Previously presented) The composition according to claim 90, wherein A^3 is CR^4 , R^4 is $-(L)_mCy^1$, and compounds have the formula **IF-3**:

$$N(OH)$$
 R^2
 $Cy^{1\cdot(L)_m}$
 I
 R^2
 R^1

Application No.: 10/808,678

99. (Previously presented) The composition according to claim 47, wherein T is CR^3 , A^1 , A^2 and A^3 are each CR^4 and compounds have the formula **IG-1**:

$$R^4$$
 R^4
 R^4
 R^4
 R^4
 R^4
 R^4
 R^4
 R^4
 R^4

IG-1.

- 100. (Previously presented) The composition according to claim 47, wherein each ZR^X is independently halogen, NO_2 , CN, or an optionally substituted group selected from C_{1-4} alkyl, aryl, aralkyl, $-N(R')_2$, $-CH_2N(R')_2$, -OR', $-CH_2OR'$, -SR', $-CH_2SR'$, -COOR', or $-S(O)_2N(R')_2$.
- 101. (Previously presented) The composition according to claim 47, selected from one of the following compounds:

Applicants: Jeremy Green et al. 10/808,678

Application No.:

I-13,

I-15,

I-14,

Application No.: 10/808,678

Applicants: Jeremy Green et al. 10/808,678

Application No.:

I-27, I-28,

I-35, I-36, Applicants:
Application No.: Jeremy Green et al. 10/808,678

or I-37.